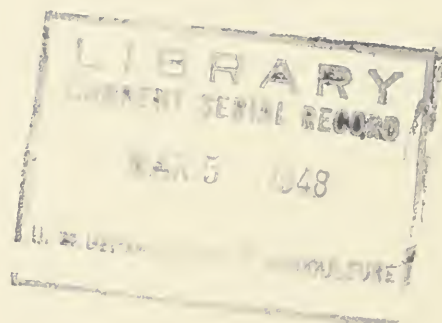


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× STATUS OF THE WHEAT STEM SAWFLY IN 1947 ×

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A survey of the Northern Great Plains was begun during the latter part of 1947 to ascertain the area infested by the wheat stem sawfly (Cephus cinctus Nort.)^{1/}. Just previous to this survey the known sawfly-infested area comprised the northern portion of Montana east of the Rocky Mountains and the northwestern part of North Dakota. Although it was possible to survey only the northern portion of the Northern Great Plains by the end of the year, this territory was so generally infested that the survey added greatly to the known area of infestation.

Survey data were secured by means of samples taken in wheat and native grasses. From one to ten field stops were made per county and samples were taken in the margins of the wheat fields or in grasses adjacent thereto. Approximately 100 wheat stems per field were examined and the percentage of stems infested was noted. Native grasses were checked for the presence or absence of sawfly larvae.

General Distribution

The general area found to be infested at the end of 1947 comprised nearly all of Montana east of the Rocky Mountains, all of North Dakota, the northern portion of the Red River Valley of Minnesota, a considerable portion of Wyoming, the north-central part of Nebraska, and a section of South Dakota. This area is shown on the accompanying map. It is likely that future surveys will reveal the presence of the sawfly in much of the area of Wyoming and South Dakota where no survey was made or where no infestation was found in 1947. It also seems probable that the infestation extends farther south into Nebraska and Colorado, and possibly into Kansas.

^{1/} The 1947 wheat stem sawfly survey was conducted by the Bureau of Entomology and Plant Quarantine in cooperation with the following agencies: Montana Agricultural Experiment Station, North Dakota Agricultural Experiment Station and Extension Service, Office of the State Entomologist of Minnesota, and the Northwest Crop Improvement Association.

Heaviest Infestations Found in Montana and North Dakota

The most heavily infested areas were found in Montana and North Dakota. That portion of the map showing the heavily infested areas of Montana was prepared by J. A. Cullenbach, of Montana State College, from records previous to 1947. It will be observed that a large heavily infested area extends from the northeastern corner of Montana across much of the northern half of North Dakota. Several smaller concentrations appear in these two States. The remainder of the sawfly territory was only lightly infested.

Sawfly populations were extremely light along the eastern edge of the infested area. Extensive searches were necessary at each stop in this area to detect the presence of the sawfly larvae. This condition prevailed in the Red River Valley of North Dakota and Minnesota, and along the eastern edge of South Dakota. It also appeared to be true of the northeastern part of Nebraska.

Wheat Found Infested Over Much of the Area Surveyed

The sawfly was found attacking wheat throughout most of the surveyed area, including practically all of Montana east of the Rocky Mountains, nearly all of North Dakota, the northwestern portion of South Dakota, and several counties in Wyoming. In a number of counties, mostly along the eastern edge of the sawfly territory, infestations were found only in native grasses. A number of these counties may eventually be found to contain infestations in wheat.

The Sawfly as a Threat to Wheat in the Winter Wheat Belt

The sawfly is now known to be present along the northern edge of the Winter Wheat Belt. This point was established during a survey made in the south-central part of South Dakota and the north-central part of Nebraska. The sawfly has not yet, however, been found attacking wheat in this section of the country. Survey records to date have only indicated native grasses as hosts. In Tripp County, S. Dak., heavily infested western wheatgrass plants were found interspersed among sawfly-free winter wheat plants.

The question logically arises as to why the sawfly has not attacked wheat in the winter-wheat section, particularly since farther north in Montana winter wheat is readily attacked. Three probable reasons why the sawfly has failed to attack winter wheat in this region are as follows: (1) The wheat plants may be resistant to the sawfly; (2) the native grasses may be more suitable as host plants at the time of egg deposition; and (3) the sawfly present in the Winter Wheat Belt may be a different species or variety from the one attacking winter wheat in Montana. The last point is now being investigated.

Host Plants of the Wheat Stem Sawfly

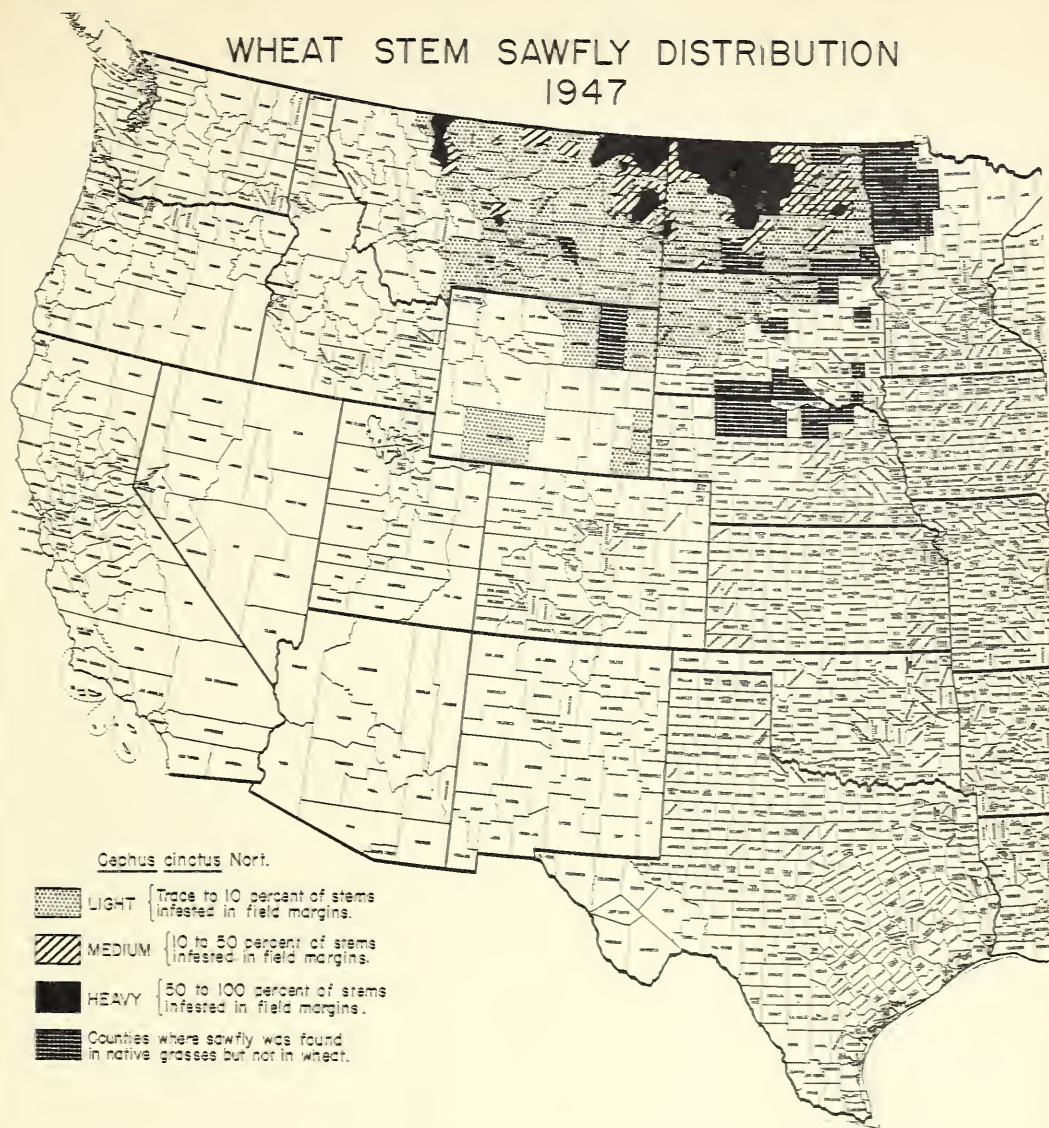
Several native grasses have been found to serve as host plants of the wheat stem sawfly. These grasses have been determined by H. E. Morris of Montana State College as follows:

Agropyron cristatum (L.) (crested wheatgrass)
Agropyron repens (L.) (quackgrass)
Agropyron smithii Rydb. (western wheatgrass)
Agropyron tenerum (Schwein) (slender wheatgrass)
Bromus inermis Leyss. (smooth wheatgrass)
Bromus secalinus L. (chess)
Calamovilfa longifolia (Hook.) (sandgrass)
Elymus canadensis L. (wild ryegrass)
Phleum pratense L. (field timothy)

Most of these grasses were observed at one time or another to be readily attacked. The wheatgrasses, owing to their wide distribution, appeared to make up the greatest percentage of the native grasses being used as host plants.



WHEAT STEM SAWFLY DISTRIBUTION 1947



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